

Dr. Duke's Phytochemical and Ethnobotanical Database

Chemicals Found in *Papaver somniferum*

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	(+)-LAUDANIDINE	Fruit	--	--		
0	(+)-RETICULINE	Latex Exudate	--	--		
0	(+)-RETICULINE	Fruit	--	--		
0	(-)-ALPHA-NARCOTINE	Inflorescence	--	--		
0	(-)-NARCOTOLINE	Inflorescence	--	--		
0	(-)-SCOULERINE	Plant	--	--		
0	(-)-SCOULERINE	Latex Exudate	--	--		
0	10-HYDROXYCODEINE	Latex Exudate	--	--		
0	10-NONACOSANOL	Latex Exudate	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	13-OXOCRYPTOPINE	Plant	--	--		
0	16-HYDROXYTHEBAINE	Plant	--	--		
0	20-HYDROXY-TRICOSANYLCYCLOHEXANE	Fruit	--	36		
0	4-HYDROXY-BENZOIC-ACID	Pericarp	--	--		
0	4-METHYL-NONACOSANE	Fruit	--	3.2		
0	5'-O-DEMETHYLNARCOTINE	Plant	--	--		
0	5-HYDROXY-3,7-DIMETHOXYPHENANTHRENE	Latex Exudate	--	--		
0	6-ACTEONLYDIHYDROSANGUINARINE	Plant	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	6-METHYL-CODEINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	6-METHYL-CODEINE	Fruit	--	--		
0	ACONITASE	Latex Exudate	--	--		
32	AESCULETIN	Pericarp	--	--		
3	ALANINE	Seed	11780	12637	0.5273634907250652	
0	ALKALOIDS	Latex Exudate	50000	250000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
5	ALLOCRYPTOPINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
15	ALPHA-LINOLENIC-ACID	Seed	1400	5564	-0.22115561650586155	
2	ALPHA-NARCOTINE	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
17	APOMORPHINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	APOREINE	Fruit	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	ARABINOSE	Fruit	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	ARACHIDIC-ACID	Seed	1720	1920	-0.4678536622769215	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	ARACHIDIC-ACID	Seed Oil	--	--		
14	ARGININE	Seed	19950	21401	-0.1371677842175051	
112	ASCORBIC-ACID	Seed	--	--	-0.33845664486186666	
112	ASCORBIC-ACID	Fruit	--	1120	-0.21485077361679586	
112	ASCORBIC-ACID	Tissue Culture	--	--		
0	ASH	Seed	65450	75060	0.8175065645162889	
3	ASPARTIC-ACID	Seed	22020	23622	0.09170736062604648	
1	BEHENIC-ACID	Latex Exudate	--	--		
130	BERBERINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
53	BETA-CAROTENE	Seed	--	--		
47	BETA-SITOSTEROL	Seed	520	550	-0.4199216005919147	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
47	BETA-SITOSTEROL	Fruit	--	--		
4	BORON	Seed	15	95	3.362596404439195	Betting on Boron, Unpublished draft by J. A. Duke on file at USDA, draft and papers relating to boron percentages. Includes Internat. Z. Vit. Ern. Forschung 43:1973 (boron).
102	CAFFEIC-ACID	Leaf	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
102	CAFFEIC-ACID	Pericarp	--	--		
28	CALCIUM	Seed	13807	16214	2.216307236056363	
2	CAMPESTEROL	Seed	200	240	-0.1263974543876007	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
1	CANADINE	Plant	--	--		
0	CAOUTCHOUC	Latex Exudate	50000	100000	0.9231280046840273	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	CARBOHYDRATES	Seed	236900	254130	-1.0701424676432536	
1	CATALASE	Latex Exudate	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	CERYL-PALMITATE	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
20	CHOLINE	Plant	--	--		
24	CHROMIUM	Seed	13.4	13.4	1.269730108106075	
23	CITRIC-ACID	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	COBALT	Seed	0.4	0.4	-0.1885954172151604	
0	CODAMINE	Plant	--	--		
0	CODAMINE	Latex Exudate	--	10		
0	CODAMINE	Fruit	--	--		
14	CODEINE	Latex Exudate	5000	25000		
14	CODEINE	Plant	--	--		
14	CODEINE	Fruit	400	1320		
14	CODEINE	Resin, Exudate, Sap	--	34700		
14	CODEINE	Gum	--	35000		
14	CODEINE	Seed	0.1	440		
14	CODEINE	Shoot	--	14		
14	CODEINE	Hypocotyl	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
14	CODEINE	Tissue Culture	34	200		
14	CODEINE	Inflorescence	--	--		
14	CODEINE	Leaf	60	430		
14	CODEINE	Stem	--	100		
14	CODEINE	Root	100	200		
0	CODEINE-N-OXIDE	Latex Exudate	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	CODEINE-N-OXIDE	Fruit	--	50		
0	CODEINONE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
12	COPPER	Seed	16	23	0.7424671767599702	
3	COPTISINE	Plant	--	--		
3	COPTISINE	Seed	--	--		
3	COPTISINE	Root	--	--		
3	COPTISINE	Stem	--	--		
3	COPTISINE	Leaf	--	--		
2	COREXIMINE	Plant	--	--		
3	CORYTUBERINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	COTARNOLINE	Fruit	--	--		
1	CRYPTOPINE	Plant	--	--		
1	CRYPTOPINE	Latex Exudate	--	--		
1	CRYPTOPINE	Gum	--	1000		
1	CRYPTOPINE	Fruit	--	--		
1	CRYPTOPINE	Tissue Culture	--	--		
7	CYCLOARTENOL	Latex Exudate	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	CYCLOARTENONE	Latex Exudate	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	CYCLOLAUDENOL	Latex Exudate	--	--		
0	CYCLOLAUDENONE	Latex Exudate	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
2	CYSTINE	Seed	4530	4859	1.188948364030366	
1	D-GLUCOSE	Plant	--	--		
0	D-MANNOHEPTULOSE	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
5	DAUCOSTEROL	Fruit	--	--		
0	DESMETHYLEPIPORPHYROXINS	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	DEXTROSE	Latex Exudate	27000	33000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	DIASTASE	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	DIHYDROPROTOPINE	Plant	--	--		
0	DIHYDROSANGUINARINE	Plant	--	--		
0	DIHYDROSANGUINARINE	Tissue Culture	--	--		
0	DOPA-DECARBOXYLASE	Latex Exudate	--	--		
20	DOPAMINE	Tissue Culture	--	--		
20	DOPAMINE	Latex Exudate	--	--		
0	EMULSIN	Fruit	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
2	ERYTHRITOL	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	FAT	Seed	400000	550000	1.4991553625628231	
61	FERULIC-ACID	Pericarp	--	--		
15	FIBER	Seed	58080	71818	-0.49714940919128525	
0	FIXED-OIL	Plant	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	FUMARASE	Latex Exudate	--	--		
0	GADOLEIC-ACID	Seed	400	429	-0.6684981302639723	
0	GLAUDINE	Plant	--	--		
0	GLUTAMATE-OXALOACETATE-TRANSAMINASE	Latex Exudate	--	--		
0	GLUTAMATE-PYRUVATE-TRANSAMINASE	Latex Exudate	--	--		
8	GLUTAMIC-ACID	Seed	45410	48713	0.2953271998679615	
12	GLYCINE	Seed	11230	12047	0.15829068106143418	
0	GLYOXYLATE-REDUCTASE	Latex Exudate	--	--		
0	GNOSCOPINE	Plant	--	--		
0	GNOSCOPINE	Fruit	--	--		
7	HISTIDINE	Seed	5280	5664	-0.12231192018547095	
0	HYDROCOTARNINE	Plant	--	--		
0	HYDROCOTARNINE	Fruit	--	--		
0	HYDROXYCODEINE	Plant	--	--		
0	INVERTASE	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
12	IODINE	Seed	0.006	0.006	-0.27786693191236994	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
6	IRON	Seed	91	143	-0.03620914616399296	
5	ISOBOLDINE	Plant	--	--		
5	ISOBOLDINE	Latex Exudate	--	--		
0	ISOCITRATE-DEHYDROGENASE	Latex Exudate	--	--		
0	ISOCITRATE-LYASE	Latex Exudate	--	--		
0	ISOCORYPALMINE	Plant	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
3	ISOLEUCINE	Seed	9050	9708	-0.09998279304064013	
22	ISOQUERCITRIN	Flower	--	--		
2	ISOQUINOLINE	Plant	--	--		
0	KILOCALORIES	Seed	5330	5718	0.6724550008044287	
0	L-DOPA-DECARBOXYLASE	Latex Exudate	--	--		
0	LACTATE-DEHYDROGENASE	Latex Exudate	--	--		
8	LACTIC-ACID	Latex Exudate	10000	20000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	LANTHOPINE	Plant	--	--		
0	LANTHOPINE	Fruit	--	--		
0	LAUDANIDINE	Plant	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	LAUDANIDINE	Latex Exudate	--	30		
1	LAUDANINE	Plant	--	--		
1	LAUDANINE	Latex Exudate	--	100		
4	LAUDANOSINE	Plant	--	--		
4	LAUDANOSINE	Fruit	--	--		
4	LAUDANOSINE	Latex Exudate	--	--		
4	LAUDANOSINE	Gum	--	--		
7	LAURIC-ACID	Seed Oil	--	--		
0	LAUROLEIC-ACID	Seed Oil	--	--		
20	LECITHIN	Seed	28000	28000	0.024823897304513683	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
2	LEUCINE	Seed	14840	15919	-0.11126836523363871	
1	LIGNOCERIC-ACID	Latex Exudate	--	--		
27	LINOLEIC-ACID	Seed	300335	309465	1.7336932275463397	
27	LINOLEIC-ACID	Seed Oil	--	--		
27	LINOLEIC-ACID	Latex Exudate	--	--		
0	LINOLENOLEIC-ACID	Seed Oil	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	LIPASE	Latex Exudate	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
4	LYSINE	Seed	10990	11789	-0.0419384760006119	
65	MAGNESIUM	Seed	3148	15600	4.99947138282473	
11	MAGNOFLORINE	Latex Exudate	--	--		List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
0	MALATE-DEHYDROGENASE	Latex Exudate	--	--		
15	MALIC-ACID	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	MALTASE	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
14	MANGANESE	Seed	29	68	0.18035715210387018	
0	MECONIC-ACID	Latex Exudate	100000	100000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	MECONIC-ACID	Gum	--	--		
0	MECONIDINE	Fruit	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	MECONIN	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	MECONINE	Latex Exudate	--	--		
0	MECONISIN	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
15	METHIONINE	Seed	4700	5042	0.1877773797959893	
22	MORPHINE	Fruit	150	4100		
22	MORPHINE	Leaf	28	700		
22	MORPHINE	Latex Exudate	30000	250000		
22	MORPHINE	Plant	900	1800		
22	MORPHINE	Root	200	3900		
22	MORPHINE	Stem	10	30		
22	MORPHINE	Gum	--	115000		
22	MORPHINE	Resin, Exudate, Sap	--	196000		
22	MORPHINE	Seed	0.3	390		
22	MORPHINE	Shoot	39	1000		
22	MORPHINE	Hypocotyl	--	--		
22	MORPHINE	Inflorescence	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	MORPHINE-N-OXIDE	Latex Exudate	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	MORPHINE-N-OXIDE	Fruit	--	60		
0	MORPHINE-N-OXIDE	Stem	--	--		
0	MYO-INOSITOL	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
6	MYRISTIC-ACID	Seed Oil	--	--		
1	MYRISTOLEIC-ACID	Seed Oil	--	--		
0	N-METHYL-14-DEACETYLISOPORPHYROXINE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
0	N-METHYL-14-O-DESMETHYLEPIPORPHYROXINE	Plant	--	--		Duke, J. A. Writeups or information summaries on approximately 2,000 economic plants, USDA, ARS, Beltsville, MD 20705.
0	NARCEINAMIDE	Fruit	--	--		
6	NARCEINE	Fruit	--	38		
6	NARCEINE	Plant	--	--		
6	NARCEINE	Latex Exudate	20	2000		
6	NARCEINE	Tissue Culture	--	--		
6	NARCEINE	Gum	--	--		
0	NARCEINE-IMIDE	Plant	--	--		
0	NARCEINONE	Fruit	--	31		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	NARCERINE	Fruit	--	20		Chemical Constituents of Oriental Herbs (3 diff. books)
0	NARCOTALINE	Plant	--	--		J.S. Glasby Dict.Pls Containing 2ndary Metabolite. 1991.
6	NARCOTINE	Latex Exudate	10000	70000		
6	NARCOTINE	Plant	--	14		
6	NARCOTINE	Fruit	--	200		
6	NARCOTINE	Resin, Exudate, Sap	--	60000		
6	NARCOTINE	Gum	--	62500		
6	NARCOTINE	Shoot	--	--		
6	NARCOTINE	Seed	0.8	2300		
0	NARCOTOLINE	Plant	--	167		
0	NARCOTOLINE	Fruit	--	--		
0	NARCOTOLINE	Root	--	--		
0	NARCOTOLINE	Latex Exudate	--	--		
2	NEOPINE	Plant	--	--		
2	NEOPINE	Latex Exudate	--	50		
2	NEOPINE	Fruit	--	--		
39	NIACIN	Seed	9.2	11	-0.9544805684815751	
11	NICOTINIC-ACID	Leaf	--	1000	0.4235889253321141	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	NONACOSAN-1,8-DIOL	Fruit	--	10		
0	NONACOSAN-1-OL	Fruit	--	--		
0	NORMORPHINE	Plant	--	--		
0	NORNARCEINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	NORSANGUINARINE	Tissue Culture	--	--		
2	NOSCAPINE	Latex Exudate	40000	60000		
2	NOSCAPINE	Resin, Exudate, Sap	--	--		
2	NOSCAPINE	Plant	--	--		
2	NOSCAPINE	Gum	--	--		
0	O-METHYLSOMNIFERINE	Inflorescence	--	--		
0	OCTACOSAN-1-OL	Fruit	--	--		
0	OCTADECADIENOIC-ACID	Seed	--	--		
0	OCTADECENOIC-ACID	Seed	--	--		
18	OLEIC-ACID	Seed	56230	71872	-0.3882701720005955	
18	OLEIC-ACID	Seed Oil	--	--		
18	OLEIC-ACID	Latex Exudate	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	OPIONIN	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	OPIUM	Latex Exudate	--	--		
0	ORIENTALINE	Plant	--	--		
3	ORIPAVINE	Fruit	--	1000		
9	OXALIC-ACID	Seed	16200	16200	2.629403151554455	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	OXOSANGUINARINE	Tissue Culture	--	--		
0	OXYCRYPTOPINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	OXYDASE	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	OXYDIMORPHINE	Plant	--	--		
0	OXYMORPHINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	OXYNARCOTINE	Plant	--	--		
0	OXYNARCOTINE	Fruit	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	OXYANGUINARINE	Plant	--	--		
25	P-COUMARIC-ACID	Pericarp	--	--		
0	P-VINYL-PHENOL	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	PACODINE	Plant	--	--		
0	PALAUDINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	PALAUDINE	Latex Exudate	--	--		
13	PALMITIC-ACID	Seed	38630	46620	0.26232081926786494	
13	PALMITIC-ACID	Latex Exudate	--	--		
13	PALMITIC-ACID	Seed Oil	--	--		
2	PALMITOLEIC-ACID	Seed	1300	1394	-0.26500524295328565	
2	PALMITOLEIC-ACID	Seed Oil	--	--		
0	PAPAVERALDINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	PAPAVERALDINE	Latex Exudate	--	--		
0	PAPAVERAMINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
26	PAPAVERINE	Fruit	20	820		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
26	PAPAVERINE	Latex Exudate	5000	10000		
26	PAPAVERINE	Gum	--	7500		
26	PAPAVERINE	Resin, Exudate, Sap	--	4000		
26	PAPAVERINE	Plant	--	--		
26	PAPAVERINE	Tissue Culture	--	45		
26	PAPAVERINE	Seed	0.2	670		
26	PAPAVERINE	Root	--	--		
0	PAPAVERRUBINE-C	Plant	--	--		
0	PAPAVERRUBINE-D	Latex Exudate	--	--		
0	PAPAVERRUBINE-D	Plant	--	--		
0	PAPAVERUBINES	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
24	PECTIN	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PENTACOSAN-7-ONE	Fruit	--	28.5		
0	PENTOSANS	Seed	30000	36000	-0.889197654700376	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PEROXIDASE	Latex Exudate	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	PHENYLALANINE	Seed	8820	9461	-0.24832088153969623	
0	PHENYLALANINE-DECARBOXYLASE	Latex Exudate	--	--		
4	PHOSPHORIC-ACID	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
4	PHOSPHORUS	Seed	8290	9277	1.0368589821266212	
0	PHYTATE	Seed	21890	23290	1.3787678314626066	
2	PHYTOSTEROLS	Seed	890	955	-0.3885675277621441	
0	PORPHYROXINE	Fruit	--	--		
14	POTASSIUM	Seed	5250	8179	-0.38616474942864093	
0	PROLINE	Seed	10620	11392	0.011029112372475834	
0	PROTEASE	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	PROTEIN	Seed	175256	198532	-0.3136921431131898	
24	PROTOPINE	Fruit	--	--		
24	PROTOPINE	Tissue Culture	--	--		
0	PSEUDOMORPHINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
1	PYRROLIDINE	Latex Exudate	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
0	QUERCETIN-3-GENTIOBIOSIDE	Flower	--	--		
0	R-RETICULINE	Sprout Seedling	--	--		
0	R-RETICULINE	Leaf	--	--		
0	R-RETICULINE	Latex Exudate	--	--		
0	R-RETICULINE	Shoot	--	--		
10	RETICULINE	Plant	--	--		
10	RETICULINE	Fruit	--	--		
10	RETICULINE	Latex Exudate	--	--		
3	RHOEADINE	Plant	--	--		
3	RHOEADINE	Fruit	--	--		
15	RIBOFLAVIN	Seed	1.6	1.93	-0.6109902953396645	
0	ROEMERINE	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	S-RETICULINE	Leaf	--	--		
0	S-RETICULINE	Latex Exudate	--	--		
0	S-RETICULINE	Shoot	--	--		
7	SALICYLATES	Seed	--	--	-0.3401776874861938	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SALUTARIDINE	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
0	SALUTARIDINE	Latex Exudate	--	--		
0	SALUTARIDINE	Leaf	--	--		
0	SALUTARIDINE	Shoot	--	--		
0	SALUTARIDINOL	Plant	--	--		Father Nature's Farmacy: The aggregate of all these three-letter citations.
0	SALUTARIDINOLE	Plant	--	--		
48	SANGUINARINE	Plant	--	--		Jeffery B. Harborne and H. Baxter, eds. 1983. Phytochemical Dictionary. A Handbook of Bioactive Compounds from Plants. Taylor & Frost, London. 791 pp.
48	SANGUINARINE	Tissue Culture	--	--		
48	SANGUINARINE	Root	--	--		
48	SANGUINARINE	Stem	--	--		
48	SANGUINARINE	Leaf	--	--		
0	SEDOHEPTULOSE	Fruit	--	--		Chemical Constituents of Oriental Herbs (3 diff. books)
1	SERINE	Seed	9870	10588	0.002624156751364612	

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
9	SINAPIC-ACID	Pericarp	--	--		
0	SITOSTEROL	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
1	SODIUM	Seed	155	300	-0.23949097118534637	
2	SOMNIFERINE	Inflorescence	--	--		
10	SQUALENE	Seed	59	59	-1.1722641630833899	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
8	STEARIC-ACID	Seed	5890	8036	-0.39103612812530036	
8	STEARIC-ACID	Seed Oil	--	--		
8	STEARIC-ACID	Latex Exudate	--	--		
0	STEPHOLIDINE	Plant	--	--		
0	STEPHOLIDINE	Latex Exudate	--	--		
12	STIGMASTEROL	Seed	50	55	-0.46035749483774474	Spiller, G. A. 1996 (Spiller, G. A. Ed. 1996. CRC Handbook of Lipids in Human Nutrition. CRC Press. Boca Raton, FL. 233 pp.)
0	SUCCINATE-DEHYDROGENASE	Latex Exudate	--	--		
7	SUCCINIC-ACID	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
0	SULFURIC-ACID	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
6	TARTARIC-ACID	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	TETRAHYDROCOLUMBAMINE	Latex Exudate	--	--		
9	TETRAHYDROPALMATINE	Plant	--	--		
0	TETRAHYDROPAPAVERINE	Plant	--	--		
7	THEBAINE	Latex Exudate	1000	25000		
7	THEBAINE	Fruit	--	7800		
7	THEBAINE	Resin, Exudate, Sap	--	17300		
7	THEBAINE	Gum	--	22500		
7	THEBAINE	Root	--	--		
7	THEBAINE	Hypocotyl	--	--		
7	THEBAINE	Seed	10	410		
7	THEBAINE	Tissue Culture	20	45		
7	THEBAINE	Plant	--	--		
7	THEBAINE	Shoot	--	--		
7	THEBAINE	Inflorescence	--	--		

Activity Count	Chemical	Plant Part	Low PPM	High PPM	StdDev	Reference Citation
7	THEBAINE	Stem	--	--		
7	THEBAINE	Leaf	--	--		
0	THEBAOL	Plant	--	--		
0	THEBAOL	Latex Exudate	--	--		
31	THIAMIN	Seed	7.8	9.9	0.7911069322871558	
4	THREONINE	Seed	9050	9708	0.35132307430924015	
0	TOCOPHEROLS	Seed	200	200	-0.5714302102468665	ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
29	TRYPTOPHAN	Seed	2550	2735	-0.20124145083987593	
8	TYROSINE	Seed	6810	7305	-0.10104412588518938	
0	TYROSINE-DECARBOXYLASE	Latex Exudate	--	--		
0	UREASE	Latex Exudate	--	--		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
3	VALINE	Seed	12870	13806	0.2210059089928253	
24	VANILLIC-ACID	Pericarp	--	--		
0	VIT-A	Fruit	--	7.2		
0	VIT-B-6	Seed	4.4	4.7	-0.05123693144565975	
0	WATER	Seed	62250	73300	-0.5921407063022331	

<b>Activity Count</b>	<b>Chemical</b>	<b>Plant Part</b>	<b>Low PPM</b>	<b>High PPM</b>	<b>StdDev</b>	<b>Reference Citation</b>
0	WAX	Latex Exudate	60000	136000		ANON. 1948-1976. The Wealth of India raw materials. Publications and Information Directorate, CSIR, New Delhi. 11 volumes.
0	XANTHALINE	Fruit	--	--		
77	ZINC	Seed	24	130	2.4094178972857168	